

CLAIMS

1. An aqueous based structured surfactant system, having solid-suspending properties and comprising: water; surfactants, said surfactants consisting essentially of non-ionic and/or zwitterionic surfactants, each comprising at least one hydrophobic group and a non-ionic or zwitterionic hydrophilic group; from 0 to 50%, based on the weight of surfactant, of acids and/or alcohols having a hydrophobic group and a carboxyl or hydroxyl group respectively; and from 0 to saturation of a water-soluble carbohydrate; said surfactant, acid, alcohol, and carbohydrate being present in proportions adapted to form a pourable structured suspending system; characterised in that at least 30% by weight of said hydrophobic groups are bent chain groups.
2. A non-ionic structured surfactant system, according to claim 1 characterised in that the proportion of hydrophobic groups, which are bent chain, is greater than that corresponding to the maximum or turning point value in the graph of conductivity of against % bent chain groups.
3. A structured surfactant system according to either of claims 1 and 2, which is an expanded L_a-phase, and which comprises water, a dissolved carbohydrate, and a non-ionic surfactant characterised by a small angle X-ray diffraction peak corresponding to a d-spacing greater than 50nm.
4. A structured surfactant system according to any foregoing claim characterised in that the hydrophobic groups are aliphatic hydrocarbon groups having more than 10, but less than 30, carbon atoms.
5. A structured surfactant system according to any foregoing claim characterised in that the proportion of bent chain hydrophobic groups is greater than 40%.
6. A structured surfactant system according to any foregoing claim characterised in that the proportion of bent chain hydrophobic groups is greater than 75%, based on the total weight of hydrophobic groups.

7. A structured surfactant system according to any foregoing claim characterised in that the bent chain groups are selected from oleyl, erucyl, palmitoleyl, nervonyl and isostearyl.
8. A structured surfactant system according to any foregoing claim characterised in that the total proportion of surfactant is between 2 and 35%.
9. A structured surfactant system according to any foregoing claim characterised in that the non-ionic surfactants are selected from polyglyceryl fatty esters, fatty acid ethoxylates, fatty acid monoalkanolamides, fatty acid dialkanolamides, fatty acid alkanolamide ethoxylates, propylene glycol monoesters, fatty alcohol propoxylates, alcohol ethoxylates, alkyl phenol ethoxylates, fatty amine alkoxylates and fatty acid glyceryl ester ethoxylates.
10. A structured surfactant system according to any foregoing claim characterised in that the surfactants have a mean HLB greater than 6.5.
11. A structured surfactant system according to any foregoing claim characterised in that the surfactants have a mean HLB greater than 9.
12. A structured surfactant system according to any foregoing claim characterised in that the surfactant comprises a mixture of at least one relatively high HLB surfactant with at least one relatively low HLB surfactant.
13. A structured surfactant system according to any foregoing claim characterised in that the high HLB surfactant has an HLB greater than 10.
14. A structured surfactant system according to any foregoing claim characterised in that the high HLB surfactant has an HLB greater than 14.5.
15. A structured surfactant system according to any foregoing claim characterised in that the low HLB surfactant has an HLB less than 8.

16. A structured surfactant system according to any foregoing claim characterised in that the weight ratio of low HLB surfactant to high HLB surfactant is less than 2:1, but more than 1:10.
17. A structured surfactant system according to any foregoing claim characterised in that zwitterionic surfactants are present in a proportion less than 70%, by weight of the total surfactant.
18. A structured surfactant system according to any foregoing claim characterised in that the zwitterionic surfactant is lecithin.
19. A structured surfactant system according to any foregoing claim characterised in that it contains a carbohydrate, which is a mono or disaccharide sugar.
20. A structured surfactant system according to any foregoing claim characterised in that the carbohydrate is present in a concentration between 15% and 75%, by weight.
21. A structured surfactant system according to any foregoing claim characterised in that it contains an electrolyte, in concentrations of 0 to 4%, by weight.
22. A structured surfactant system according to any foregoing claim, for suspending water insoluble pharmaceutical or veterinary active ingredients, which consists essentially of: water; from 0% to saturation of a dissolved carbohydrate; from 0 to 10% by weight, based on the weight of the suspending system, of electrolyte; and from 3 to 10% by weight, based on the weight of the suspending system, of a surfactant mixture consisting of (A) a pharmacologically or veterinarily acceptable surfactant, having an HLB greater than 10, and (B) a pharmacologically or veterinarily acceptable surfactant, with a HLB less than 10, oleic acid or a phospholipid in a weight ratio of from 10:1 to 1:1, (A):(B).

23. A pharmaceutical or veterinary suspension comprising a pharmacologically or veterinarily acceptable structured surfactant system according to any foregoing claim and suspended particles of at least one pharmacological or veterinary active substance, said particles comprising at least two populations differentiated with respect to size and including a first population, of non-colloidal particles comprising at least 10% based on the total weight of the particles, and a second population of particles comprising at least 10%, based on the total weight of the particles, wherein said first population has a mean particle size at least ten times the mean particle size of said second population.
24. A method of suspending pharmaceutical or veterinary active ingredients in a structured surfactant system according to any of claims 1 to 22.
25. A suspension formed by the method of claim 24.
26. A method according to claim 24 of preparing suspensions in dose form for oral use.
27. A food product or beverage comprising a continuous aqueous liquid phase, and suspended, non-colloidal solid, characterised in that said aqueous phase is a structured surfactant system as aforesaid, which consists essentially of: water; from 25% by weight, based on the weight of the suspending system, to saturation of a dissolved carbohydrate structurant; from 0 to 10% by weight, based on the weight of the suspending system, of electrolyte; and from 3 to 10% by weight, based on the weight of the suspending system, of a surfactant mixture consisting of (A) an edible surfactant, having an HLB greater than 10, (B) an edible surfactant, with a pH less than 10, in a weight ratio of from 10:1 to 1:1, (A):(B).
28. A suspension of alkaline earth metal soap in a structured surfactant system according to any of claims 1 to 22.
29. A suspension according to claim 28 wherein the soap is calcium stearate.

30. A suspension according to either of claims 28 and 29, wherein the soap is present in an amount greater than 20%, but less than 48% by weight based on the weight of the suspension.